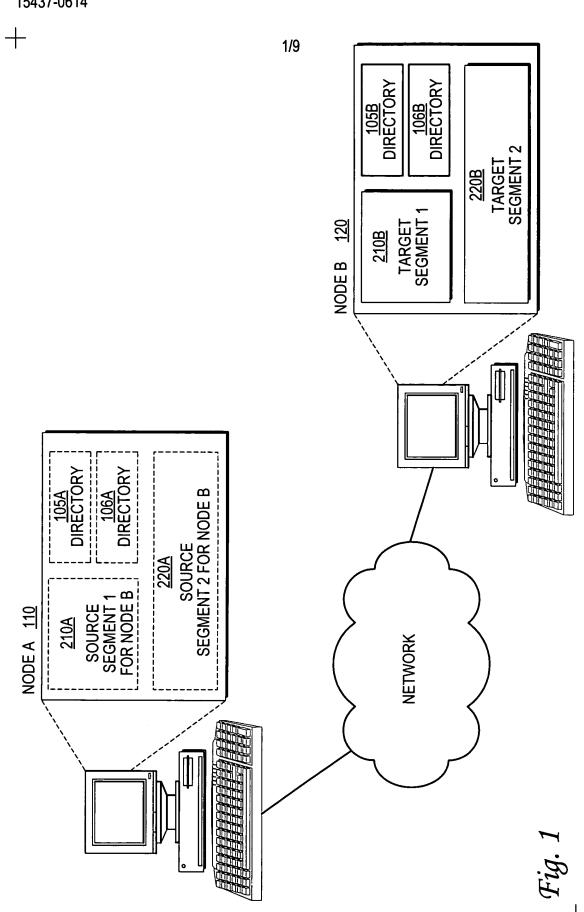
Title: Transfer Of Arbitrary Size Messages Over Memory Based Interconnects

Inventor(s): Prashant Ramarao, et al.
Date: March 25, 2004
Docket No.: 15437-0614
S Express Mail No. EV323351697US Sheet 1 of 9

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TARGET SEGMENT SOURCE SEGMENT a2 210B' SOURCE DIRECTORY DIRECTORY 210B TARGET NODE B 120 SEGMENT SEGMENT 220B 220B' 105A' DIRECTORY DIRECTORY SOURCE SEGMENT TARGET SEGMENT 210A SOURCE SEGMENT 105A DIRECTORY 210A' TARGET NODE A 110 SEGMENT 220A' 220A

Title: Transfer Of Arbitrary Size Messages Over Memory Based Interconnects Inventor(s): Prashant Ramarao, et al. Date: March 25, 2004 Express Mail No. EV323351697US Docket No:. 15437-0614 Sheet 3 of 9 3/9 Form a first segment group comprising a pairing between a first source segment in a memory space of a sending machine and a first target segment in a memory space of a receiving machine and having a first partition size. 302 Form a second segment group comprising a pairing between a second source segment in a memory space of the sending machine and a second target segment in a memory space of the receiving machine and having a second partition size. 304 Receive in the sending machine, a message to be sent. 306 Select a segment group for transferring the message from the first segment group and the second segment group, the selected segment group having a partition size smaller than a length of the message. 308

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Copy the message into the plurality of contiguous partitions of the source segment of the selected segment group.

<u>310</u>

Send the content of the plurality of contiguous partitions of the source segment to the receiving machine as a single message.

312

Return

Fig. 3A

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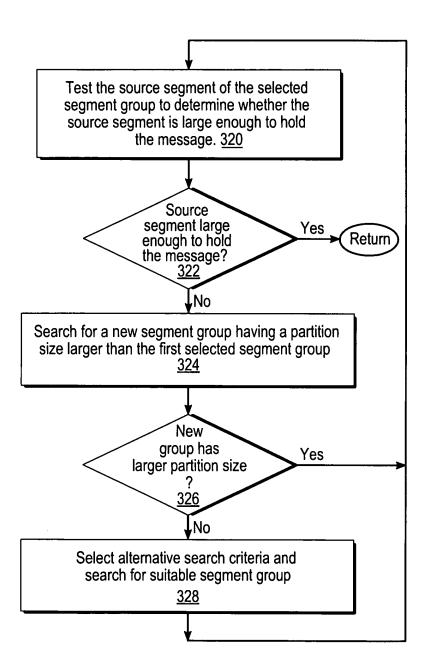


Fig. 3B

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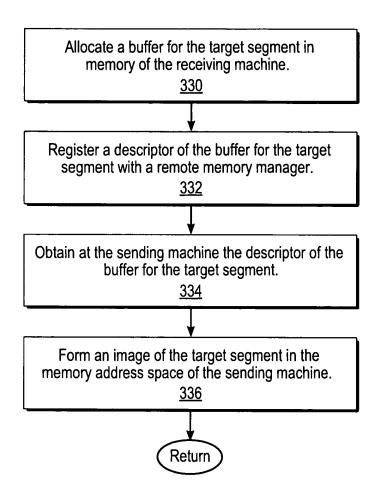
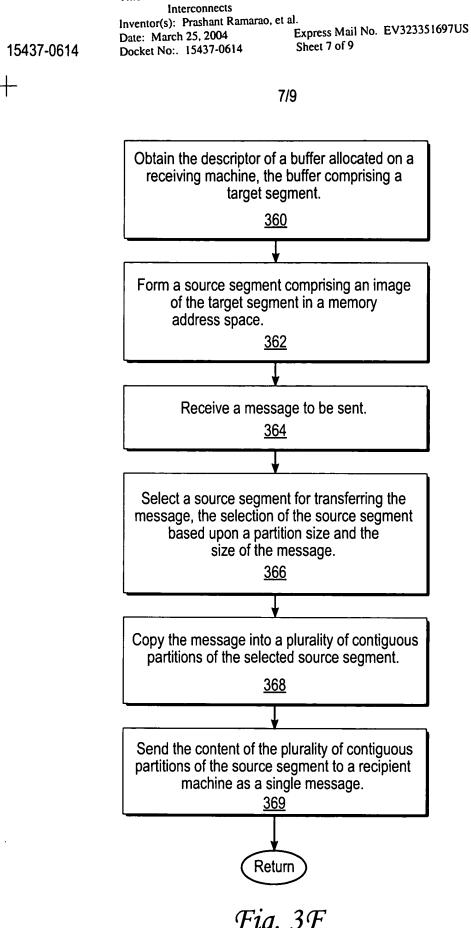


Fig. 3C

Transfer Of Arbitrary Size Messages Over Memory Based Title: Interconnects Inventor(s): Prashant Ramarao, et al. Date: March 25, 2004 Express Mail No. EV323351697US Docket No:. 15437-0614 Sheet 6 of 9 6/9 Register each segment group in a segment group table and each segment in a segment table. <u>340</u> Maintain in an entry of a directory of entries an indicator of whether the directory entry corresponds to a first partition of a plurality of contiguous partitions storing a message and information about a next partition of the plurality of contiguous partitions if the message spans multiple partitions 342 Fig. 3D Search for a paired source segment and target segment capable of transferring the message from the sending machine to the receiving machine. 350 Determine from an entry in the directory corresponding to the paired source segment and target segment whether the paired source segment and target segment comprise sufficient contiguous partitions to transfer the message. <u>352</u>

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Fig. 3E



Transfer Of Arbitrary Size Messages Over Memory Based

Title:

Fig. 3F

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Allocate a buffer comprising a target segment in a memory.

370

Register a descriptor of the buffer for the target segment with a remote shared memory manager.

372

Receive a single message comprising content of a plurality of contiguous partitions comprising a source segment image of the target segment in a memory address space of a sending machine, the source segment selected from among a plurality of source segments based upon a partition size and a size of the message.



Fig. 3G

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